12/10/72

This memorandum on the meat-chicken capacity of Coq d'Or Farm is prepared from recollection. It is confirmable by a number of existing records, including pictures.

There will be little or no reflection of the equipment in our books, as was the case with the buildings, because of economies I was able to practise. It can't be inclusive, because I can't remember all. As an example, the memo on the buildings was inadequate because not until thinking of what to include in this memorandum did I recall a fourth building I purchased at the beginning and had hauled in at no cost when a buldozer trailer was coming down from near where the building ~~is~~ was and I bought the building from a friend of the bulldozer operator.

The nature of the economies varied from swapping what I did not need for what I thus obtained, to buying at farm sales and trade deals. We made quite a number of these with Harford Metal Products Co., whose partners, although suppliers to the poultry industry, preferred our poultry and we traded. (Thus also there will be no reflection in any production records we might find of the poultry produced and swapped.) I have their catalogue of the period in question, and this show worth if that becomes a question.

(We also obtained what is called cages for separate housing of hurt egg layers from Harford, in part or totally this way. We began with provision for 12 hens per pen, then 24 and finally had to expand to a capacity of 48 per pen by standard concepts and then had to crowd that. Sometimes even that was inadequate. What this means is that we had to figure on being able to house in relative protection and isolation at least 10% of the capacity of each penn of lawyers because of the injuries to them.)

Chickens for eggs are raised in two ways, on the floor or in cages, also called batteries under some circumstances. If raised on the floor they can be managed mechanically, as they now are almost exclusively if raised in cages. By mechanically I mean to include feed, not just water. Meat chickens are generally raised on the floor, which means on a litter of some kind, varying with the region, which controls the costs of what is useable as litter. In a very large operation, the costs of raising meat chickens in batteries ~~ix~~ are enough greater to eliminate the possibility. At all times we raised meat chickens both ways, shifting as much as we could to batteries because we could obtain a better product that way and later because it provided some protection against the damages caused by the helicopters (wherever I say this I include the less common sonic booms). With proper management, the capacity of a building can be increased enormously with the use of batteries. Particularly when chickens or different ages are raised and needed.

As of the time we began, there was a marked tendency to what was called "all in, all out", meaning single flocks of a single age. Except in the few operations comparable to ours, I presume this is now universal. One of the reasons is the reason our operation was not comparable to industry standards. It is a rare exception when the man who raises the meat chickens owns them. They are generally part of a rather large operation, of which the Perdue operation on the Eastern Sore is an example and in which mills can mean the difference between profit and loss. The common practise today is for everything connected with the production of chickens to have single or combined ownership, from the gleam in the eyes of the fertilizing rooster to delivery to the mass outlets. This includes the hatching-egg flocks, all trucks used, the feed mills, the dressing plants, etc. I am not up to date on the rearing and housing of the live chickens, but ~~that was~~ they were generally owned by the combine or contracted to those who had buildings on a very low per-chicken basis, as of the time of my being up to date very often under such circumstances that the "farmer" could and did hold a job away from home, the little attention the chickens got in his absence being provided by others in the family. It was then unprofitable for the "farmers", but they had little choice. By this development in orgabization, everything was planned before the egg was laid, including when how many day-old chickens would go to what building and for how long, with the capacity of the dressing plant figured in and I suppose the time of what day the chickens would reach the dressing plant and how. It was called as was integration. The quality of the finished product was not comparable with ours. Nor were the costs, in any way.

As of the time we built our plant to the point where we had to stop building because of the helicopter troubles, we had three modern, insulated brooder houses, identified by numbers in the order in which we built them. In Number 1 we also had automatic gas heat at the end and it was entirely a battery operation. It was our incubator room, too. Aside from a couple of small 50-egg, still-air incubators used only rarely, we had three semi-automatic forced-air incubators of a kind still standard in scientific use. (I last saw identical incubators in use 11/71, in Parkland Hospital, Dallas Texas.)These had a capacity of 800, 1200 and 2100 eggs, respectively. I remodled one to permit more space between the drawers of eggs to accomodate goose and duck egss, which are larger. Or, I got it after Charles Haight had remodled it. Until he got too old (most would have considered him too old when I first met him), Charles Haight hatched all my eggs for me, on a weekly basis. I'd make a trip a week to his place, taking eggss to be set with me and taking home what had hatched. When I did my own hatching, I also set eggs weekly, having day-old meat chicks each week and during their more limited season, day old goslings. The fertile period is longer for ducks than for geese. (I was never able to begin to exploit the available market for either because of these troubles, especially with geese, which were hard to get and, when raised commercials, something their character deters, were not of good quality.)

The other two brooder houses were automatically heated by gas brooders permanently installed, each with electric brooding provided and sometimes used in the milder months. In both of thhese brooder houses I had complete control over the envrionment at the end, having to perfect this to cope with the troubles caused by the helicopters. This included even such things as enabling total darkness while providing perfect ventillation. I think you will find some correspondence with Dr. Shaffner, then head of the poultry department of the University of Maryland, on some aspects of this, I am certain including an inexpensive light trap I developed, that left air pass in or out but blocked light, even in bright sunlight. Ventillation was provided by fans that were inexpensively but automatically controlled. Lights were also controlled automatically.

All three of these buildings had concrete floors, as did the pole barn. and hen house.

I could and did brood in the pole barn, a long building of numerous 14-foot pens, using electric hanging brooders there. I had a number of these but preferred an infra-red one manufactured by Harford. It actually permitted brooding day-old chicks in sub-freezing weather, with no other source of heat, but in the barn I never used it that way. I was one of the very first to use infra-red for brooding, if not the first, having discovered its unusual heating properties by accident in the home of a friend who used several of these bulbs to heat a cold spot in his farmhouse kitchen.

In all brooders heat, whatever its character of source, is controlled automatically, even in my home-made ones, where the temperature varied no more before activation of the control for on and off than in a home automatic heating system, less than in our present home. Until chickens were well-fledged, it was the practise to provide a temperature of 95° on hatching, gradually lowering it as they feathered out, about 5° a week, until they required no external heat. In an environment-controlled house, such as ours, the heat generated by the chickens was used for heating them. With mature chickens, the heat generated in a 24-hour period was about equivalent to that produced by 100 pounds of hard coal. Thus the heat generated by the chickens could be used not only to keep them warm when they required heat, but also to improve the drying of the buildings, the elimination of the moisture they also generated. (Chickens have but a single orifice for the elimination of body wastes. It is called the vent. The urates and the feces came out together. An experienced husbandman could tell much of the condition of his chickens by the appearance of his chickens' droppings.)

Each of these three brooder houses had a capacity of 800-1000 squab-sized or individual-serving chickens if used for floor raising. It could have been greater,because of the controlled envirobment and the relatively small size, but I do not recall every brooding more at one time. What I did when I used these for the floor raising of chickens for meat was to dress part of the cockerels when they would dress to about 12 ozs, thus reducing the population as the chickens grew (the rate is very fast for about two months). This could be as early as four weeks, more usually five. Whether I dressed more of the cockerels for marketing at this size varied with needs and I can' generalize about it. About a week later the pullets or females would be of this size and I'd dress whatever I wanted of them for squab size. (The live weight as I recall was about 20 ozs, or pretty small by normal commercial standards.) Above this size my market required chickens that would weigh 24-28 ozs dressed as the next size and a very popular one. For everything to this size my price was the same, $1.75 each. Beginning at 2 pounds, the price was 90¢ per pound. Our price list shows this. It never varied. It was also the wholesale price, and because of the scarcity of poultry of this quality, including my inability to begin to meet the available quality market, I had no trouble getting it as the wholesale price. The actual cash cost in so small a bird is remarkably small, particularly when I did my own hatching from my own eggs. I then figured the baby chick cost me not a penny because the breeding flock produced enough eggs I did not or could not set to more than pay for itself. (Eggs too small were uncommon, but eggs too large for hatching were not and they brought me $1.00 a dozen. In addition, smaller flocks always lay much better, so our hatching-egg production was much higher per chicken than ~~xxx~~ usual in chickens bred for meat.)

To put this last point another way, had I not lost the unusual breed I used for the production of hatching eggs, as I finally did to the helicopters, my actual cash cost for the production of meat chickens, once the buildings were built and equipped, was for the feed they ate and the relatively small amount of cash for dressing them for marketing. All the overhead existed anyway, save for the small amount of energy used for heat.

I think it would be a conservative estimate to say that my profit on this squad-sized bird that was a speciality was 350%, a fantastic markup in any business, over cash costs. We had reached the point of maximum effeciency at the time we had to stop farming, as I will explain below.

To compare this with the usual meat-chicken operation, I could produce at least two crops of these very small chickens to be sold at $1.75 each in the time required for the production of a single crop of the usual fryer-size that sold for a retail price of from less than 60¢ to in a few cases about 90¢. Moreover, I could produce at least twice as many of this size per unit of space. Or, more than four times as many chickens per unit and at from two to ~~xx~~ more often three times the unit price.

Comparing this with my chickens of commercial size, and I could make them grow more rapidly than commercial chickens and did, I got ~~not less than~~ three times the retail per pound price of commercial chickens of commercial size.

This also means my capacity was much greater per cube of space, as my potential for profit was enormously greater per cube of space. In addition, although I used a much more expensive feed, these very young chickens consumed enormously less feed per unit of weight. I did considerable original nutritional work and at the time I had to suspend was well on the way to developing not only the better way of producing quality chickens, which I had for all practical purposes perfected, but a means of producing chickens on an improverished diet for the more costly part of their rearing life, just before marketing, when they consume more feed per pound of meat yield. I probably have the experimental records, where I weighed each chicken individually and weighed all the feed they ate. A patent was applied for but this also had to be abandoned. (I had no interest in the cheaper method for my own market, for it could not and in my experimental work did not produce the quality my market demanded.)

I was never able to complete my planned expansion. This called for the construction of a two-story, automated hen house at the eastern end of our property, along Route 109, two stories high, and the conversion of the hen house into a brooder house in which the pullets for the laying house would be reared. Also, a combination dressing and freezing plant between out home and the Number 1 brooder house, also multi-storied but much smaller than the projected hen house. I can time this but can t prove it by any word other than mine by the building of a Jamesway automated hen house to the north of us for a man from Baltimore who wanted to become a farmer, started in it full scale and with no previous knowledge, and who could not possibly have succeeded for this reason and because he did not have the kind of market required for survival, which takes time to build. The James Mfg. Co.'s representative for our territory went into busines for himself on the Eastern Shore and no longer has any of these records. I did look him up the last time I was on the Eastern Shore.

Had I been able to do this, the three brooder houses, without further expansion, would have permitted what is by comparison an astronomical increase in meat-chicken production, with the long, multi-penned barn available for the rearing of large-sized meat chickens. (We had a market for very large ones, and nine pounds, ready-to-cook weight was a commercial rarity but commonpalce with us. I can't now be sure, but I think that although they were not by any means common, I did produce a few that dressed up to about 14 pounds.)

Our means of rearing meat chickens changed as our plant and its equipment grew and changed. Not only must flexibility be a characteristic of a relatively small operation that must ~~each~~ week meet ~~all~~ the requirements of its market, but coping with the problems brought by the helicopters required it. (I was able to flatten peaks out by freezing.)

To this point I think you can see that we had an exceptionally profitable potential. Bearing on this are records we can produce, of continual efforts to improve effeciency to the very end, until the very moment we had to decide there would be no stopping of these disturbances that made any kind of operation impossible. Two illustrations of this come to min immediately, and there may be more. One is the purchase of at least new feeders for the hen house and I think added nests (to provide enormously more than the usual number of nests for the hens and probably to replace those that actually were damaged by the disturbed chickens). Obviously, if I did not linger in the hope of these distrurbances ending and our business becoming as porfitable as I had every reason to believe it could I would not have spent this money. Some of those feeders, which have an indefinite life, being of heavy, galvanized metal, were used but a couple of months (the same would be true of the nests). The same is true of meat chickens, where I got at least one and a very expensive 1,000 chick brooder from Harford. I never even used the heating units on it! (I already had ~~three~~ sets of them in the Number 1 Bldg, but if I'd not planned to need them, I'd not have gotten them or the battery itself. So, until we had to suspend, we did more than merely try to persevere. I got rid of another brooder that was usable to make room for the superior Harford unit. It did not increase my capacity. It was a better piece of equipment and it was more effecient.

At this point I think I'd better explain "batteries" as I did floor brooding. Generally speaking, they are of two types, with and without heat, with variations in each variety. Those without heat have more headroom and are intended for chickens no longer requiring heat, larger but still immature chickens. (Fryers are immature.) To use the Harfords as a standard, in the same height, a battery with heat has five layers whereas one without has four. (With the Harfords, I did have heat pads for the larger or growing batteries and could and did use them for brooding.)

While there are also variations in sizes, by and large there are or then were two basic sizes, the one rated at 200 chicks per layer, like the Harfords, and one half that size, rated at 100 chicks per unit.

These are unreal capacities. They mean only day-old capacity. It reduces as the chicks grow.

All batteries have wire-mesh floors through which the manure falls, an advantage, a means of holding and/or getting rid of the manure, grilles to hold the chicks or chickens in, and trays for feed and water. In the batteries other than Harford that we had, the only parts that could normally be expected to wear our were the manure pans and the water thoughts and the water grilles. With the Harfords, this was not the case. The water pans were stainless steel (with an automatic flow of water) and instead of manure pans there was an endless plastic belt over which Kraft paper was fed from a roll. Cranking a handle that controlled the belt rolled out the paper and with it the manure, and simply cutting off the paper left a fresh sheet to collect manure. The manure thus was automatically and rapidly removed, to fall into a wheelbarrow for removal from the building. (I also developed a wholesale market for all our manure, at $15.00 a ton, to a nurseryman who came and hauled it himself.) With chicks the floor mesh was about 3/8 or 1/2 inches, with fryers, about 3/4". Where we had manure pans, I scraped the manure from them into a wheelbarrow, by hand. There is more space between the deposited manure in batteries like the Harford, which became important as the chickens were made wild by the helicopters and tended to stampede even without detectable cause, so while I could have and ordinarily would have kept the other batteries as I got more Harfords, I did not because it became impossible or close to it to raise the young chickens this way because their jumping and stampeding pounded the floors into the manure, which was not good for them and made tending the manure pans difficult for me and another cause of excitement for the chickens. So, I got rid of some that could have been used otherwise, and I had housing space for them and the chickens they could have held and under other conditions would have. At the end I was not using two of the smaller buildings I would have used for this reason only. One is attached to the western end of No.2 and one we called the "Yellow" Bldg, just a few feet to the west of it. Yet in an operation like ours, although they were small, they had a pretty decent capacity, largely because we had chickens of different sizes and ages.

The No.2 and No. 3 Bldgs. were connected by what we called "The Porch". It was an insulated space, with running water, on which we had a 1,000 chick brooder battery and two sets of Beacon brooder batteries half that size but six high instead of five layers. In the unreal industry measurement, this gave us a brooding capaicty on The Porch of 2,200 meat chicks. Actually, we staggered the ages and sizes. If all had been of one age and squab size, this meant that we could there raise to squab size, under less than the best conditions, crowding that would have worked without the helicopter disturbances, of about 750.

In The Yellow Building I had an off-size growing battery, about midway between the capacities of the two standard sizes. I had to get rid of it because of damage done it by disturbed and excited chickens. After I got rid of it I used that building for brooding in milder weather and growing year-round until I had to stop using it because of the chickens behavior described above in connection with the manure pans. Its capacity was the same as that of The Porch. It was not insulated, it did not pay to insulate it, so I discontinued use of it before I h ad to discontinue use of the porch. The destruction to this equipment by the chickens was incredible, as the picture I have of No. 1 and the superior, new equipment will illustrate. In practise, I used both The Yellow Bldg and the Porch for all sizes up to good-size fryers. This, of course, considerably reduced their capacities. There is no measurement I can give, because the populations and sizes varied with needs. As a general rule, the earlier standard, where I compare our produce with the commercial, applies to capacities here, too. At the end, these capacities were entirely unused. Yet I had earlier produced what ~~xx~~ was officialy the country's best poultry in them.

The Yellow Bldg. had Beacon and similar brooder batteries in them, and I divided as I now recall 12 Hudson growing batteries between them shifting them as needed. These Hudson growing batteries were large enough to hold large roasters. They were larger than fryer size. (At the end, when the Harford cages I got for the damaged hens were insufficient, I took to hanging individual layers of these Hudson batteries in the paying pens, in addition to the Harford cages, which gives an added indication of the amount of damage.) all These Hudson batteries had a single-age capacity of 175-200 fryers at a time. Because of rotation of ages, it could be and when necessary was larger, for each layer would hold more smaller chickens I could and did then thin out as they grew and as I dressed off the largest ones.

Had it not become impossible, I could have used the small building attached to No. 2 for battery or floor operation. I had used it for both. It would have held 100+ large fryers at a time, and at a time could have been 3-4 week cycles, after squab size, when they required no external heat most of the ~~xxxx~~ year. (I did have electric floor brooders for it and for another small building of half the size in which I had earlier produced 100 squad-size at a time in five-week cycles. It became impossible to raise meat chickens on the floor because of stampeding, piling up, tearing and smothering and extremely hazardous to do this with large chickens, where with mechanical injury the unit cost of the loss could be very large per chicken.)

When I was not using the No. 2 and No. 3 Bldgs for replacement pullets, for laying stock, I had used them to raise meat chickens on the floor. At the end, when I did not need them for layer pullets, I dared use them only for smaller numbers of the largest meat chickens , and then only with difficulty and apprehension. The reason is the behavior of the hysterical chickens.

My plan was to use the westernmost pens of the barn for these larger chickens, other pens for the breeding flock and moulted layers. I did keep the breeders in the barn until I lost them to the helicopters, and I do recall that in addition to using the eastern pens of the barn for the moulted layers, I used those to the west of the middle for a flock of Harco sex-linked pullets, of which I took individual pictures with a Sokonic 8mm camera when George Quigley was there and I think I was moving them to the hen house. So, unless I were to estimate the number of roaster or large-sized meat chickens I could have produced in the barn, and I think it would be an undependable figure, I can't give any figure for meat-chicken production or capacity for it, even though I am sure that at some point I did use it for medium-sized meat chickens. My plan did not include using it for any but large meat chickens. Any estimate would be conjectural and not supportable.

We had a few of the smaller brooder batteries I used in emergencies in the house, although I didn't like to. The had a day-old capacity of about 600 chicks. There were times we had to do this. My wife didn't like it a bit!

I also recall that we did use some of the Hudson growing batteries in the central pen of the barn, or at least in the central pen, probably one to the west of it on occasion, but of that I am not certain.

At the end, our small, meat-chicken production was pretty much concentrated in the No. 1 Bldg because of the behavior of the chickens under the constant stresses. I am not now clear on whether it contained the Jamesway 1,000 chick battery brooder or whether I disposed of it, which was my ultimate plan, replacing it or intending to replace it with a Harford battery of identical capacity but superior to it. There was nothing wrong with it, except that probably some of the grilles and floors had been damaged by the crazies. The Harford's were better, as would be expected of laboratory equipment, which they are. So, although I think it was still there and could be used, I'll not count it. The reason for uncertainty is that some time after we had to discontinue farming several young men who were starting an animal-supply business for laboratories, chiefly several species of monkeys, used this and the other brooder houses and removed what they wanted to remove. Their monkeys pretty much ruined what the chickens hadn't.

Two of the growing batteries were also equipped for brooding. There were three growing batteries. There were also two 1,000 chick brooding batteries. Thus, without the Jamesway and in the unreal, day-old standard, there was simultaneous brooding capacity of 3,600 day-olds. In terms of squabs, these had a capacity, if all five batteries were used siluntaneously, of 1200 per six weeks, which permitted cleanout time. Obviously, I could not operate this way at that time, for I had the week-to-week business to hold on to and to service, so I had to have all ~~aged~~ ages, and I had had to abandon the use of the other and then-empty buildings because the losses in them were too great and tending chickens in them became intolerable. The fact is that toward the end, tending chickens even in this insulated, controlled-environment building became intolerable, as the pictures I took there, coinciding with the records, will show, and I had to give the chickens more space when I could.

If the growing batteries were used for growing only, then, depending on size and not staggering, as I would have, they had a simultaneous capacity of more than 350 birds that would dress more than enough for each to serve two people in three-week cycles. However, all of this is unreal because the losses were too great and we couldn't do it. I believe the logs or notes will have samples of the number of chickens that were not killed in the buildings and not destroyed by me because they were clearly unsuitable because of the visible damage to them or because their nervousness was such they just didn't flesh out enough to be up to our standard and the requirement of our market. These samples will show some of the damage in those we actually dressed, where the damage was not visible or where there seemed to be a possibility of recovering enough in usable meat to justify dressing.

If you want me to go to what will be a rather considerable amount of work, I can try to give these figures more meaning, but I am not certain they will be believed. As they stand they are very unreal and deceptive, which is not my intent. However, if we total the capacities of all the buildings not used for replacement pullet breeding except that attached to the No. 2 Bldg., which I'd probably not have used, in day-old chicks this comes to more than we actually raised, 7,100 at one time. Translated into squab size, this comes to about a fourth of this capacity, or about 1,750. (We could never have done this, another unreality, because it was beyong my capability to do the kind of dressing job I did of that many over a two-week period. We did dress as many as more than 200 larger birds a day, but not often. But my dressing job had to be perfect, and with these stresses dressing in itself became enormously more time-consuming even where the damage did not include the flesh but did include the feathers.) With the equipment used either of these two ways, and still not using floor raising, we had a simultaneous capacity of 300-325 fryer-sized birds in three-week cycles. Switching one or both of the Harford growing cages that were equipped for brooding would, of course, alter the capacities in all other sizes. And none of this allows for a popular roaster size, which reduced the capacity of the growing batteries, and which my market regularly demanded, so I needed them fresh regularly and had to freeze them in advance of need regularly. The capacity in them varied too greatly to estimate, because it varied with their size and that was often more than 100%. So, any estimate of the number of roaster size capacity in the Harford growing batteries would be undependable and would be corrupted in both directions were I to make it because of the conditions imposed by the helicopters. The batteries were more than adequate for this kind of use. They had enough headroom and the ~~high~~ height of the feeders was adjustable. First, it eliminates the preferable way of raising them, on the floor, which became a practical impossibility. It also ignored a serious problem that was a consequence of the helicopter disturbances, a different kind of damage to the birds. In the resultant turmoil they battered themselves quite a bit, they jumped as much as they could, and in doing these and ~~simliar~~ similar things they tended to blister their breasts and to injur their hock joints. From time to time this was quite troublesome and costly. This hock injury grows into a medical problem, one of the few we had. If it was not consistent and was not in the strict sense medical, it still resulted in unsalable birds. There can be some of this in floor rearing, but it is considerably lessened. However, in floor rearing there was the incessant piling up in corners with resultant smothering and tearing of backs and thighs, to a lesser degree, legs. The litter on the floor cushioned the jarring of the hock joints in the jumping and the blistering of the breasts against the wire floors and metal grilles. did not happen on the floor.

Here you should also understand that if there was but a single hysterical chicken in any flock, it triggered the defense mechanism, survival, really, of all others within view or hearing. With the No.1 Bldg this meant within hearing of the hens house, where there were always hysterical laying chickens. At some point I will probably have to tell you about the survival mechanism and the alarm systems of animals, particularly but not exclusively chickens. My data include such different other species as fish and acquatic mammals, penguins and mink. There are classic cases of penguins and helicopters, and I have some of the Navy stuff on them, which includes regulations prohibiting helicopter flights near their rookeries (as with us, often only joy-riding, not necessities).

I don't know if you can imagine what a single hysterical chicken running loose and jumping like hell can do with its claws if it weighs a not uncommon weight, 10 lbs and comes down clawing and scratching on the backs of others, but it is enough to cause severe damage that easily leads to deaths, directly or indirectly (as via cannibalism).

(I think I forgot to mention that The Porch also had gas heat, which meant year-round use for the youngest chickens with no problems at all. We grew from pairs of 100lb gas tanks at each building to a central very large tank from which gas was piped to each of the three numbered brooder houses and the porch.)

There is no doubt in my mind that we could have sold what we could have reared in meat chickens within no more than the existing capacity if we had not had these impossible-to-cope with problems. I recognize this does not mean that there will not or cannot be doubt in other minds, particularly the judge's. Unless you have had to cope with the seemingly simple but really extraordinarily serious problem of removing broken feather quills from otherwise superior carcasses, you can't imagine the amount of time that took. Nor, unless you had to try to rear chickens under these conditions, and every time you saw them had not only their intolerable behavior to contend with, simultaneously the nagging certainty of its economic cost, can you realize how revolting it can be to tend to stock thus ruined. If it had not been for this, I'd never have needed any farm help from the time the doctor made my wife quit working in the city. Tending to the chickens if they had not been the victims of such stresses was not heavy work. There was almost no water to carry, for we had automatic waterers almost every place. The buckets of feed weighed less than 20 pounds at their heaviest. In the hen house and wherever we reared on the floor the feeders had a reservoir, the smallest of 20 pounds of self-feeding feed. Merely touching these hanging feeders had the effect of freshening it and attracting the chickens to it. We always planned to instal relatively inexpensive screw-type tube conveyers to distribute feed automatically in the hen-house feeders, but with the behavior of the chickens, this involved too great a risk (by their flying into the down-feeding tubes, which would have resulted in damage to them and the tubes and large wastes of feed). Our last farm hand was a woman. Tending chickens is a traditional farm-woman's job.

The reality was not my capacity, not my market potential, but that with which I could survive until these intrusions and their stresses would end. It became impossible to absorb the economic losses and impossible to abide the chickens whose behavior had been so altered and impossible live this way. It artificially exhausted me. The drain on the emotions is beyond description. A GHA consultation with Dr. Albright by me to which I think I have referred and in 1960 reflects this with regard to me, and Dr. Crowell's telling my wife to stop working the year before with regard to her (the hiring of farm help also relates to what it did to her emotionally, not physically except through her emotions).

Aside from the never really exploited Xmas-present business available, I had always planned two day deliveries each week. This was impossible because despite our just about unheard of profit margin and quality, I could not afford to produce under the circumstances forced upon us by the helicopters and because the condition of the flocks forced me to be at the farm almost constantly. Aside from their behavior and the work required to cope with it, there were the consequences, endless messes to clean up, birds escaping from batteries and causing endless turmoil, injured ones to segregate and treat, and unpredictable floods when they caused the automatic waterers to keep pouring water out. (It could have changed, but from the beginning of my business I always intended the second day of delivery to be in the Bannochburn area, as I now recall by the number of people who had asked me to deliver there.)

With this as a basis, I cancompute what we could have produced, without these troubles, and using the available buildings and equipment on a staggered basis, the only way possible for a regular , weekly delivery business. I'd have to employ abritrary breakdowns of sizes, have to consider which of the available mass markets I'd have elected, how much I'd have increased our goose production, and other things that would be conjectural and subject to question. I never did more of this because I believed that I would be limited to a claim of at most $5,000 per year for meat-chicken losses of whatever origin, the compromise agreed to at the first Pentagon conference to reach an amicable settlement.